

REMARKS/ARGUMENTS

Reexamination of the captioned application is respectfully requested.

A. SUMMARY OF THIS AMENDMENT

By the current amendment, Applicants basically:

1. Editorially amend the specification, e.g., to include captions conducive to US practice.
2. Amend claims 1, 4, 5, 7, 9, 10, 12 and 16.
3. Attach (as a separate file comprising an electronic filing) replacement drawings making corrections as suggested by the Examiner.
4. Respectfully traverse all prior art rejections.
5. Advise the Examiner of the simultaneous filing of a Petition to Extend.

B. AMENDMENTS OF THE CLAIMS

Claim 1 has been amended to more clearly define what is meant by “stops functioning properly”, i.e. that the amplitude goes below the boundary value and no limiting is performed, see, e.g. § [0019] of the specification. The wording of claim 16 has been amended to be consistent with claim 1. Further, minor editorial changes have been made to enhance the legibility of the claims. The dependent claims have been amended to obviate the informalities therein.

C. PATENTABILITY OF THE CLAIMS

Claims 1-4, 7, 8, 10-13, 15 and 16 stand rejected under 35 USC 102(b) as being anticipated by U.S. Patent 6,137,374 to Merrill. Claims 9 and 14 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent 6,137,374 to Merrill in view of U.S. Patent 6,163,228 to Pope. All prior art rejections are respectfully traversed for at least the following reasons.

Merrill

Claim 1 is novel and non-obvious over Merrill. Merrill's clock oscillator circuit 10 includes a resonator network 12 (see Fig. 1). However, Merrill does not disclose that the clock oscillator circuit 10 has a switch for switching the bias source 20. The oscillator amplifier 14 continues to function in the sleep mode, see column 4, lines 3-6. The bias therefore continues to function as well, because the bias is controlled by the oscillator amplifier 14. Hence, Merrill does not disclose that the clock oscillator circuit 10 has a switch for switching the bias source 20. Accordingly, Merrill does not disclose each and every feature of claim 1.

Furthermore, since the clock oscillator circuit 10 does not have a switch for switching the bias, the bias source 20 does not have a first state in which a high level of energy is provided at said source contact, and a second state in which a lower level of energy is provided at said source contact. Accordingly, for this additional reason, Merrill does not disclose each and every feature of claim 1.

In Merrill, the level-shifter amplifier (which is not a part of the oscillator bias circuit) is enabled or disabled to switch the circuit of Fig. 1 between sleep-mode and active mode, see column 3, lines 58-62. Merrill does not disclose a circuit that provides the signal at the enable input of the level-shifter amplifier 16. However, the amplitude of the signal outputted by the resonator network 12 disclosed in Merrill cannot not decrease in the sleep mode or when switching between active mode and sleep mode, since the resonator network 12 will be oscillating and losses in the resonator network are compensated for, via the bias current through bias resistor R_{bias} which is driven by the oscillator amplifier 14. Hence, the circuit that provides the signal at the enable input of the level-shifter amplifier 1, and thus controls the switching between the active mode and the sleep mode does not, and in fact cannot, depend on a decreasing amplitude of the

oscillator signal. Accordingly, for yet this further reason Merrill does not disclose each and every feature of claim 1.

Moreover, a person skilled in the art will not, starting from Merrill, arrive at the subject matter of pending claim 1. In the sleep-mode the signal outputted by the circuit is not sufficient to drive circuitry, see column 3, lines 62-65. Thus, in Merrill the signal is allowed to degrade in order to save power consumption. This is completely different from claim 1, in which degradation of the signal is counteracted while still reducing power consumption, see e.g. Fig. 7 and page 4, line 24+ of Applicant's specification. Therefore, the person skilled in the art would not, starting from Merrill, seek to modify the circuit disclosed in Merrill to arrive at the subject matter of claim 1.

Pope

Pope discloses an oscillator circuit which can be switched by a switching circuit (formed by resistors R2,R3,R102,R103 and FET Q2), see column 3, lines 40-45) between a normal power mode and a lower power consumption mode. However, Pope does not disclose a signal shaping device, nor a switch for a bias source. In this respect it is observed that resistor R4 provides the bias (see column 3, lines 29-31) and is not connected to the switching circuit. Accordingly, Pope also fails to disclose each and every feature of claim 1.

Furthermore, the switching circuit switches the oscillator circuit between normal power mode and the lower power consumption mode depending on the use of the device in which the circuit is provided, see e.g. column 1, lines 55-57. Hence. the switch between the normal power mode and the lower power consumption mode is not performed depending on the amplitude of the oscillator signal. Accordingly, for this further reason Pope does not disclose each and every feature of claim 1.

Moreover, the person skilled in the art will not, starting from Pope, would not arrive at the subject matter of claim 1. The oscillator circuit disclosed in Pope exhibits a degraded signal in the lower power consumption mode, see, e.g., the penultimate sentence of Pope's abstract and column 1, lines 54-58. This is completely different from claim 1, in which degradation of the signal is counteracted while still reducing power consumption, see e.g. Fig. 7 and page 4, line 24+ of Applicant's specification. Hence, the Pope teach is completely different from claim 1. Therefore, the person skilled in the art is not directed by the teaching of Pope to arrive at the subject matter of claim 1.

Combined Teaching of Pope and Merrill

Neither Pope nor Merrill teach, suggest, or provide a motivation to make a combination. Thus, the skilled person would not make this combination. Moreover, the circuit disclosed in Pope has an oscillator circuit completely different from the circuit disclosed in Merrill. Furthermore, the switching circuit disclosed in Pope is of a type completely different from the circuit that is used to control the mode of the low power clock oscillator disclosed in Merrill. Accordingly, to combine the teachings extensive modifications are required to the circuits, extending beyond the capacities of one with ordinary skill in the field of oscillator design. Thus, the skilled person would not combine the teaching of Merrill with Pope.

Claim 16

As understood from the foregoing discussion of claim 1, operation of the circuits disclosed in Merrill and Pope is completely different from a method with the features cited in claim 16. Accordingly, claim 16 is novel and non-obvious.

As explained above, in the circuit disclosed in Merrill the bias source is not switched between a first state and a second state. Furthermore, the oscillator signal V_1

from the oscillator circuit exhibits a constant amplitude, since neither the oscillator amplifier 14 nor the bias 20 is switched off. Only the amplitude of the pulse signal provided by the level-shifter amplifier 16 decreases when switching between the active mode and the sleep mode. (However, in the respective mode the signal outputted by the level-shifter amplifier 16 remains constant). Hence, the switching between the active mode and the sleep mode does not, and in fact cannot, depend on a decreasing amplitude of the oscillator signal.

Merrill's operation is opposite to the operation of the oscillator circuit defined in pending claim 1, as can e.g. be seen in Figs. 6 and 7 of the present application, in which the signal provided by the oscillator 100 does decrease in time when the bias is in the second state but the output signal at the outputs does not necessarily decrease. The principle of operation of the circuits disclosed in Merrill and Pope is therefore completely different from the oscillator circuit as claimed in pending claim 16. Therefore, claim 16 is novel and non-obvious.

Other claims

Since claims 2-4,7-15 are dependent on claim 1, these claims are novel and non-obvious as well, whereas novelty and non-obviousness of claims 5 and 6 has already been acknowledged.

Neither Merrill nor Pope discloses a circuit with the features of the present claims, and the present claims comply with 35 USC § 102. Furthermore, a skilled person would not combine any of the cited documents to arrive at the subject matter of the present claims. Hence, the present claims are non-obvious and comply with the requirements of 35 USC § 103.

Accordingly, the application is in condition for allowance and a notification of allowance is respectfully requested.

Applicant regrets that the Office Action lacked any extensive explanation to support its allegation that Applicant's claims lack novelty over Merrill. The foregoing should sufficiently defuse the rejections based on U.S. Patent 6,137,374 to Merrill and/or U.S. Patent 6,163,228 to Pope. However, should such rejections persist despite Applicants' contentions herein, Applicant respectfully requests more detailed technical explanation of the such rejection(s) so that Applicant can fairly counter the same.

D. REPLACEMENT DRAWINGS

Attached as a separate file comprising an electronic filing are replacement drawings making corrections as suggested by the Examiner. In addition to the Examiner's suggested corrections, Applicants have labeled box 100 of Fig. 1 as "oscillator" and box 101 as "limiter".

E. MISCELLANEOUS

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

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Art Unit: 2817

Respectfully submitted,

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